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COMPRESSION TERMINAL FOR CABLE CONDUCTOR

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COMPRESSION TERMINAL FOR CABLE CONDUCTOR

[Keeburu dotai-yo asshuku tanshi]

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[There are no amendments to this patent.]

Claim

A compression terminal for a cable conductor characterized in that it is equipped with a conductor compression part for housing and holding an end of a cable conductor by compressing it and with a sheath compression part seamlessly linked to said conductor compression part so as to house an area where the aforementioned cable conductor is exposed by peeling its sheath while surrounding the area near said peeled end part, wherein the aforementioned sheath compression part is provided with a waterproof projection which is firmly stuck to the periphery of the aforementioned cable sheath near the peeled end part in order to

seal the aforementioned conductor compression part and the aforementioned sheath compression part from the outside.

Detailed explanation of the invention [0001] Industrial application field

The present invention pertains to a compression terminal for a cable conductor suitable for improving the waterproofness of a branch line connection an underground cable and overhead wiring.

[0002] Prior art

Various types of power distribution systems, such as overhead and underground installed systems, are used as low-voltage power distribution systems. Figure 2 shows a schematic diagram of the connection between those types of low-voltage power distribution lines in a branching structure. In the figure, branch line 3 starts from powerline pole 2 in order to connect overhead power-distribution line 1 to an underground cable (not shown). The connection of branch line 3 to the underground cable (not shown) is realized using low-voltage branching device 5, and cable connection 6 is formed on branch line 3 so that it can be connected to low-voltage branching device 5. This type of cable connection is disclosed in Japanese Kokai Utility Model Nos. Hei 1[1989]-34510, No. Hei 1[1989]-34511, and Hei 1[1989]-34512, for example.

[0003]

Problem to be solved by the invention

Incidentally, cable connection 6 of the aforementioned type has the following specific configuration. A cross sectional view of the main parts at either end of the branch line is shown in Figure 3. Branch line 3 is configured by covering cable conductor 3A with sheath 3B. Cable connection part 6 is protected by waterproof cover 6A made of insulating rubber, and connection terminal 6B is compression-connected to cable conductor 3A. However, the waterproofing ability of the conventional branch line configured in this manner is inadequate.

[0004]

That is, as shown in Figure 2, because this type of branch line 3 is exposed to the outside at one end, the part connected to overhead power distribution line 1 may sometimes loses its waterproofing ability. In such cases, rainwater sometimes invades the gap between cable conductor 3A and sheath 3B as indicated by arrows 7 at the start of branch line 3 shown in Figure 3. Water will run down between cable conductor 3A and sheath 3B of branch line 3 and reach cable connection 6. Then, as shown in the figure, the water overflows from the gap between cable conductor 3A and

sheath 3B as indicated by arrow 8 and sometimes comes into contact with an electrical component of the branching device, such as a fuse provided inside of cable connection 6 and/or another component. In this case, the metal parts provided in cable connection 6 and low-voltage branching device 5 can become corroded, terminating the power distribution process. This problem is not necessarily restricted to aforementioned branch line 3 but it is common to many connections for this type of cable.

[0005]

The present invention addresses the aforementioned problem, and its purpose is to present a compression terminal for a cable conductor with which water can be prevented from running down between the cable conductor and the sheath to invade from the cable connection side.

[0006]

Means to solve the problem

The compression terminal for a cable conductor of the present invention is characterized in that it is equipped with a conductor compression part for housing and holding an end of a cable conductor by compressing it and with a sheath compression part seamlessly linked to said conductor compression part so as to house an area where the aforementioned cable conductor is exposed by peeling its sheath while surrounding the area near said peeled end part, where the aforementioned sheath compression part is provided with a waterproof projection which is firmly stuck to the periphery of the aforementioned cable sheath near the peeled end part in order to seal the aforementioned conductor compression part and the aforementioned sheath compression part from the outside.

[0007]

Operation

The terminal is equipped with a conductor compression part, a sheath compression part, and a waterproof projection; so that, the cable conductor can be compressed by the conductor compression part in order to establish an electrical connection. In addition, the sheath compression part is compressed, and the waterproof projection firmly addresses at the same time to the periphery of the sheath near the end part where the sheath is peeled. The conductor compression part and the sheath compression part are sealed from the outside due to the waterproof function of said projection, so that even if water invades between the cable conductor and the sheath, it never reaches to the connection.

[0008]

Application example

The present invention will be explained in detail with reference to an application example illustrated by the attached figure. Figure 1 shows an application example of the compression terminal for a cable conductor of the present invention where (a) is a longitudinal sectional of the main part of the compression terminal for a cable conductor, and (b) is a cross section of the main part when said compression terminal is connected to a cable. In the figure, as shown in (a), the compression terminal for cable conductor 10 of the present invention is equipped with conductor compression part 11, sheath compression part 12, waterproof projection 13, and fuse linkage part 14.

[0009]

As shown in (b) of the figure, conductor compression part 11 is part in the form of a blind hole formed on compression terminal for cable conductor 10 using a copper alloy, and it is compression-connected to cable conductor 3A. In addition, sheath compression part 12 surrounds an area near the end where sheath 3B of the cable is peeled, and it is compressed together with conductor compression part 11. As shown in the figure, said sheath compression part 12 is seamlessly linked to conductor compression part 11 and formed at a part on the extension of said blind hole.

[0010]

In addition, waterproof projection 13 is provided at the opening of sheath compression part 12 and has a toroidal form so that its radius is slightly smaller than that of sheath compression part 12. On the other hand, fuse linkage part 14 is plate-shaped, and is connected to a power fuse (not shown). Bores 15 for connecting to fuse terminals are provided on said fuse linkage part 14.

[0011]

This kind of compression terminal for a cable conductor 10 is compression-connected to cable conductor 3A using a hydraulic press which is widely used to connect this type of terminal. In this case, as shown in Figure 1 (b), sheath compression part 12 is also compressed simultaneously with conductor compression part 11 in the direction indicated by arrows 16 until waterproof projection 13 adheres firmly to the periphery of sheath 3B near the peeled end part.

[0012]

As a result, the blind hole formed by conductor compression part 11 and sheath compression part 12 becomes sealed off from the outside by waterproof projection 13. Therefore, even if water were to invade the gap between sheath 3B and cable conductor 3A, it would be confined to the interior of conductor compression part 11 and sheath compression part 12 and never discharged to the outside. As a result, when compression terminal for cable conductor 10 is used for cable connection part 6 of the type shown in Figure 3, there is no way water can invade cable connection part 6, so that corrosion of a low-voltage branching device can be prevented.

[0013].

The present invention is not restricted to the aforementioned application example. Although a compression terminal for connecting to a branching line was used as an example in the aforementioned application example, the present invention can be applied to all compression terminals used for connection parts where water must be prevented from invading from the outside. In addition, the shape and quantity of waterproof projection 13 provided at the opening part of sheath compression part 12 can be changed as desired. Also, water impermeability can be improved by widening waterproof projection 13 or by providing two or more waterproof projections along the inner periphery of sheath compression part 12. In addition, fuse linkage part 14 is not always necessary and may be replaced by a tulip contact or an electrical connection element of a different type. Furthermore, if the aforementioned cable conductor compression terminals are provided at either end of a cable, invasion of water into the cable can be prevented, and the reliability of the power distribution facility can be further improved.

[0014]

Effect of the invention

Because the compression terminal for a cable conductor of the present invention explained above is provided with a conductor compression part for housing and holding an end of a cable conductor by compressing it, a sheath compression part seamlessly linked to said conductor compression part so as to house an area where the cable conductor is exposed by peeling its sheath while surrounding the area near said peeled end part, and a waterproof projection which firmly adheres to the periphery of the cable sheath near the peeled end part in order to seal the conductor compression part and the sheath compression part from the outside, invading water between the cable conductor and the sheath can be stopped by said terminal part in order to prevent said water from entering the cable connection part. Accordingly, the reliability of the cable connection part is improved, and safe power distribution can be realized.

Brief description of the figures

Figure 1 shows the compression terminal for cable conductor of the present invention, where (a) is a longitudinal section of the main part of the terminal, and (b) is a cross sectional view of the main part when the terminal is connected to a cable.

Figure 2 is a schematic diagram of a branching structure between an overhead power distribution line and an underground cable.

Figure 3 is a longitudinal section of the starting part of a branch line and the main part of the cable connection.

Explanation of the symbols

- 10 Compression terminal for cable conductor
- 11 Conductor compression part
- 12 Sheath compression part
- 13 Waterproof projection
- 14 Fuse linkage part
- 15 Bores

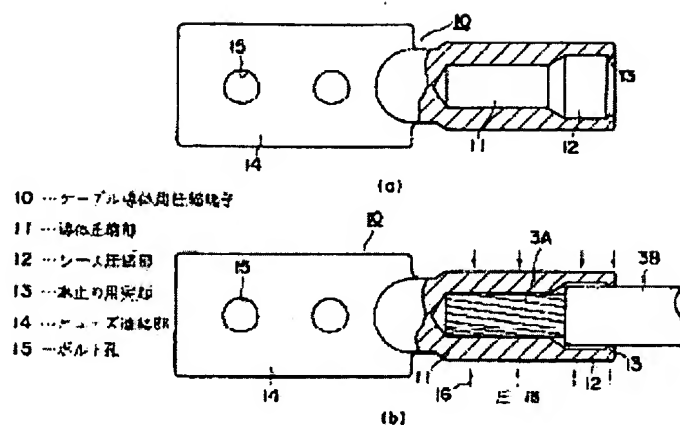


Figure 1

- Key:
- a Compression
 - 10 Compression terminal for cable conductor
 - 11 Conductor compression part
 - 12 Sheath compression part
 - 13 Waterproof projection
 - 14 Fuse linkage part
 - 15 Bores